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Preliminary draft of proposed report to the Legislature on rapid transit-freeway coordination and construction of an underwater trans-Bay transit tube. 1958.

The problem - the solution. (1959?)

Rail rapid transit and the private automobile. A statement by John M. Peirce, General Manager, San Francisco Bay area rapid transit district, presented to the Legislature and Highway committees of the California State Automobile association, Whitcomb Hotel, San Francisco, February 20, 1959. 1959.

Rapid transit moves ahead. 1961.

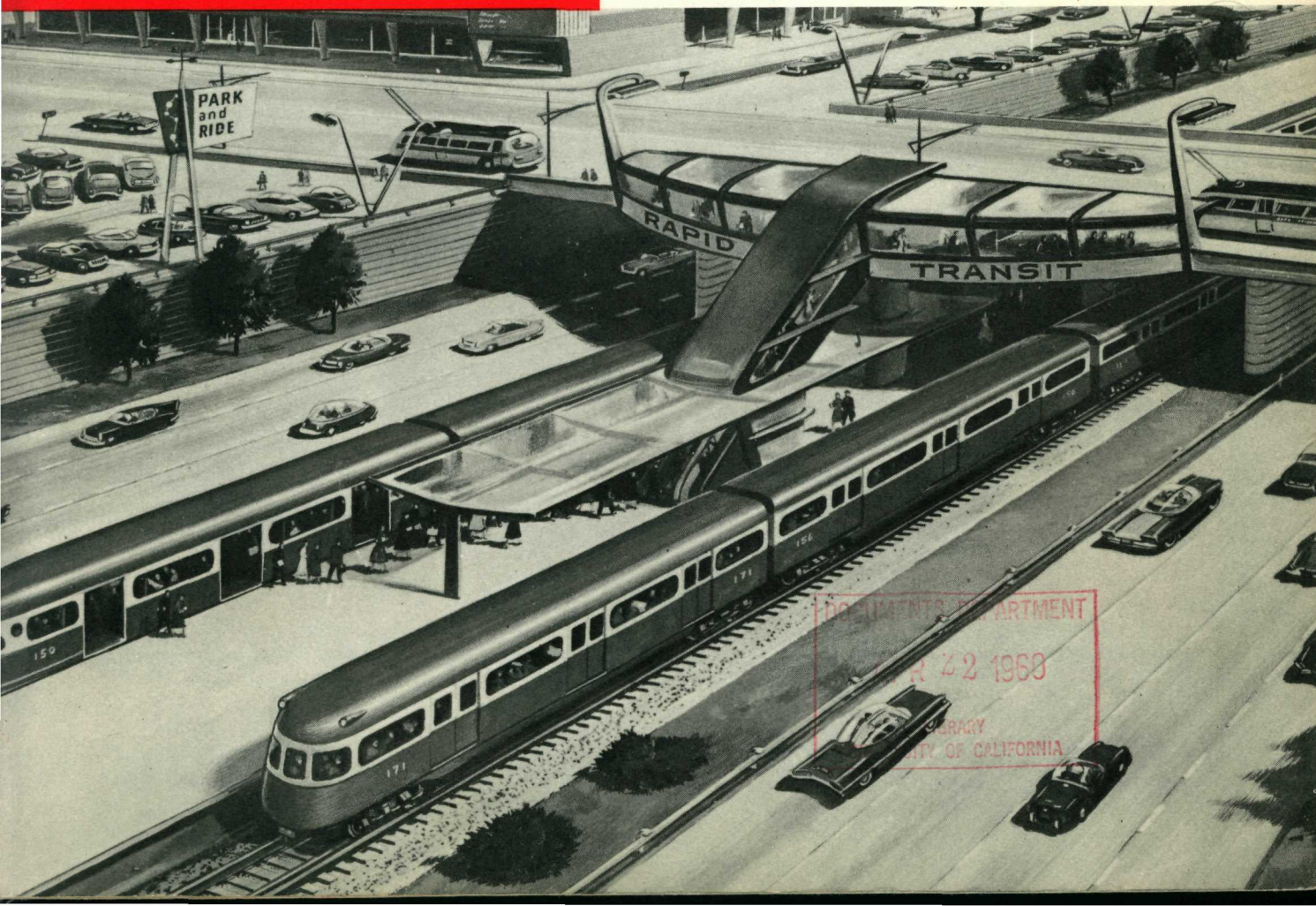
Solving interurban travel problems in the Bay area. Questions and answers on the report "Regional rapid transit" for the San Francisco Bay area. (1955?)



California - San Francisco Bay Area
the PROBLEM



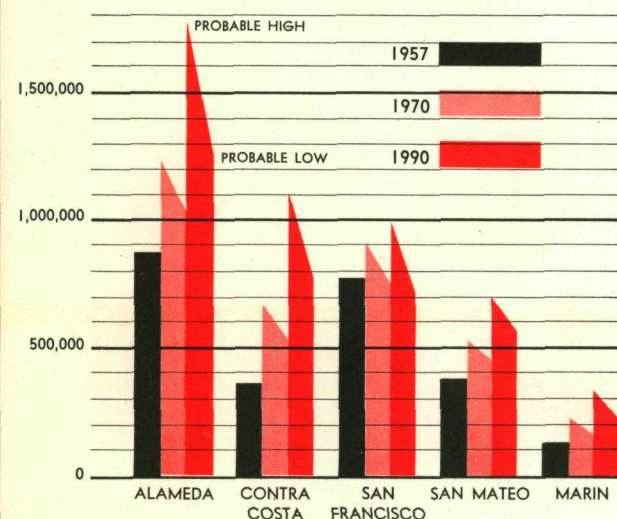
and rapid transit commissions
the SOLUTION



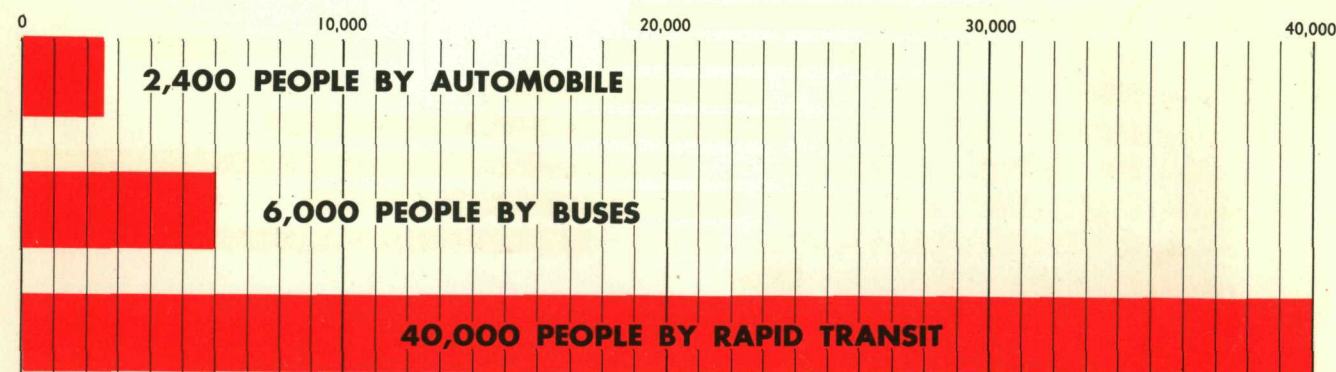
Rapid Transit

San Francisco Bay Area Rapid Transit District

POPULATION PROJECTIONS
FOR THE FIVE SAN FRANCISCO
BAY AREA COUNTIES



PEOPLE PER HOUR PAST A GIVEN POINT



ONE LANE OF RAIL RAPID TRANSIT can move about 40,000 people per hour. A modern freeway lane in comparison can move only

about 2,000 passengers per hour, and this capacity diminishes as congestion increases . . . as cars move at a crawl.

THE PROBLEM

Too many people and too many automobiles! And more of both are coming daily. We're adding population at a rate equal to the addition of a new city of 30,000 every 100 days. The suburbs are booming with new residents and new industries. But the central cities are growing also as more and more big buildings go up to accommodate increasing centralized functions of all types.

Experts say that by 1970 Bay Area population will have soared from about 3,500,000 to about 4,800,000. By 1990, it might reach 7,000,000—more than double the present figure. The prospect is frightening, for if automobile ownership continues just at its *present* level, there will be 3,500,000 automobiles instead of the more than 1,300,000 now—and *strangulation* of our city streets and freeways instead of mere congestion.

What's more, the majority of the coming population will have to build their homes on now-vacant land farther and farther from the central core of jobs, entertainment, recreation and culture around the rim of the Bay. That means more trips, longer trips, more congestion.

The highway builders frankly admit they can't cope with the situation by themselves. There just isn't enough room or enough money to build all the freeways, interchanges, access ramps and parking facilities that would be required to accommodate *all* of the future population in automobiles alone. Not if the Bay Area is to continue to prosper, provide a wealth of job opportunities, and be in the future the delightful place it is today in which to live and work and raise a family.

What is needed is a supplemental transportation system to take the major load off of the freeways and city streets, thereby permitting them to function properly during the critical 20 hours a week when masses of workers are moving between their homes and their jobs.

THE SOLUTION: RAPID TRANSIT

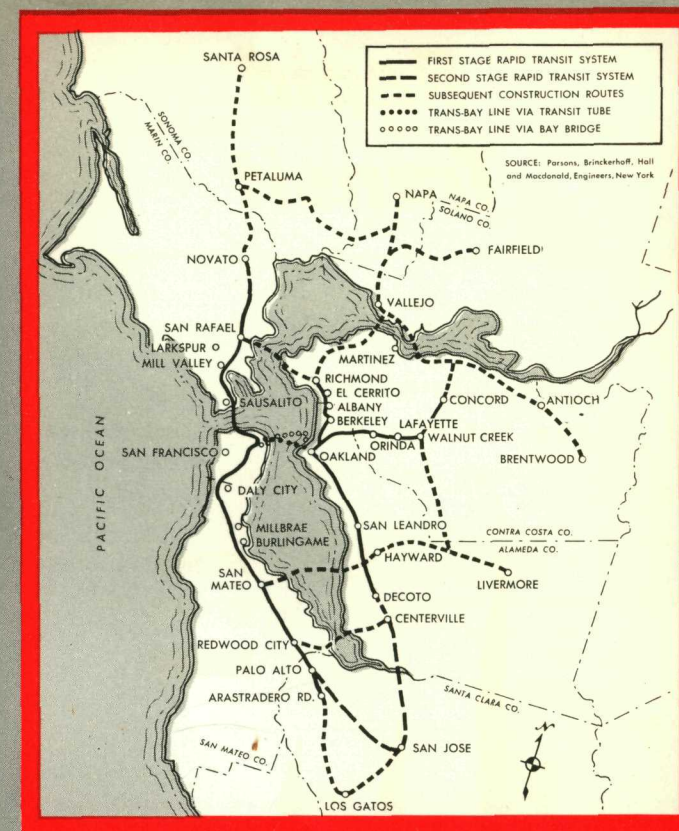
Designed to move *people*, not automobiles! RAPID TRANSIT can carry 40,000 people per lane per hour, swiftly, economically and safely. It could accommodate the major share of the tens of thousands of commuters whose home-to-work trips create the most critical congestion, leaving more room on freeways and city streets for trucks and those who *must* drive their cars.

Freeways cannot take care of this rush hour traffic alone. They have a capacity of only 2,400 people per lane per hour in automobiles. The capacity of city streets is much less. In addition, mid-day parking must be provided for *every* automobile. No parking facilities are required for RAPID TRANSIT patrons.

The accompanying map shows the regional RAPID TRANSIT system suggested for the Bay Area. It is designed to improve circulation by eliminating congestion . . . to make Bay Area streets and highways *safer* . . . to improve business in all areas by making all areas more accessible . . . to promote the growth of already established communities . . . to discourage unorganized, unplanned and inefficient metropolitan "sprawl" . . . to make it possible for people to live where they want and to work where they want with the assurance that they can travel to all other parts of the Bay Area swiftly, economically and safely.

Without RAPID TRANSIT, there is mounting evidence to indicate that the Bay Area will not live up to our fond hopes of the future for our economic base is built upon the free and efficient movement of people and goods.

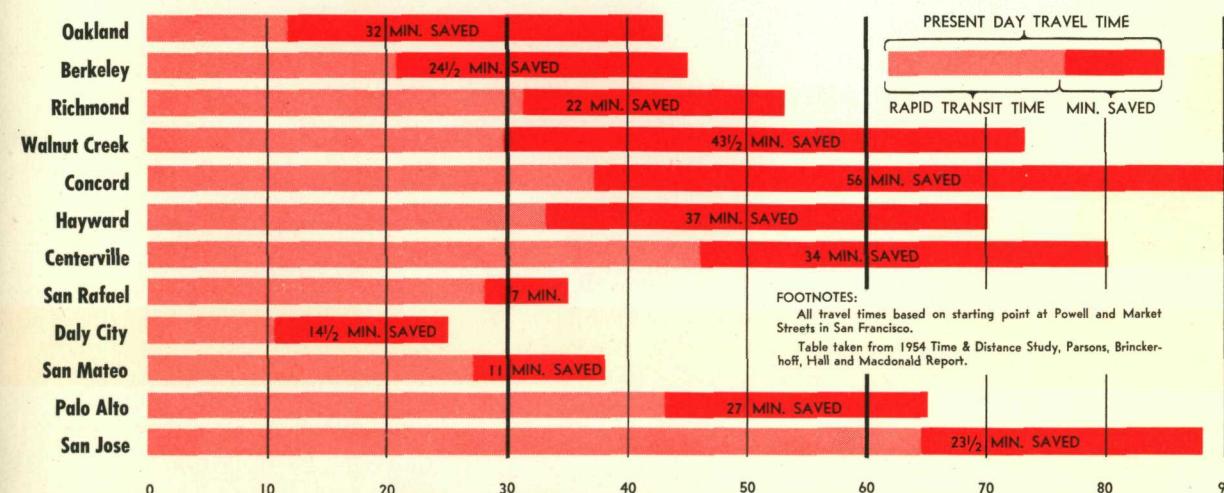
The accompanying graph shows how RAPID TRANSIT would literally "*shrink*" the Bay Area through dramatic savings in travel time between various points. RAPID TRANSIT can achieve these time savings because its high-speed—70-mile-per hour—trains would



operate over entirely private and grade-separated rights-of-way. Thus, they would neither contribute to nor be affected by the mounting congestion on city streets and freeways.

And time tables would be unnecessary for the trains would operate as frequently as *every 90 seconds* during rush hours!

PEAK HOUR TRAVEL TIME BETWEEN
SAN FRANCISCO AND ADJACENT URBAN CENTERS



FOOTNOTES:
All travel times based on starting point at Powell and Market Streets in San Francisco.
Table taken from 1954 Time & Distance Study, Parsons, Brinckerhoff, Hall and Macdonald Report.

What's Happening NOW?

The San Francisco Bay Area Rapid Transit District, comprising the Counties of Alameda, Contra Costa, Marin, San Francisco and San Mateo, is developing a RAPID TRANSIT plan to submit to the voters as soon as possible—perhaps in 1960. The final decision will be up to YOU and the other voters of the Bay Area.

The District, governed by a 16-man Board of Directors appointed by the boards of supervisors and city councils of the five counties, is building its plans on the important foundation laid by the former nine-county Bay Area Rapid Transit Commission. Created as a fact-finding body by the Legislature in 1951, the Commission went out of existence in December, 1957, after establishing that there definitely is a need for inter-urban RAPID TRANSIT in the Bay Area, defining the present and future areas that should be served and, most important, determining that the cost of such a system is justified and would be less expensive and infinitely more desirable than the alternative of doing nothing.

The Commission attacked its task by assembling a force of highly qualified engineers, planners, economists and other experts. They made a complete planning study of the Bay Area

Should you desire further information on RAPID TRANSIT, please contact the Bay Area Rapid Transit District office, 628 Flood Building, San Francisco, telephone YUkon 2-9838.

The District publishes a monthly information bulletin and can make available speakers and a 27-minute motion picture on rapid transit to clubs and organizations.

—the first such study every made—and drew up a master plan of development, taking into account the aspirations and plans of all of the counties and their cities. Only then did they start to develop a RAPID TRANSIT plan to serve the anticipated population, travel demands and planning goals.

Finally recommended was the basic 123-mile system shown on Page Three, with provisions for its expansion later into the outlying Counties of Santa Clara, Napa, Solano and Sonoma.

Subways were recommended for the dense, heavily built-up sections of downtown Oakland and San Francisco with an underwater tube across the Bay tying together and making possible a travel time of *only* 11½ minutes between the twin “core” cities of the Bay region.

In outlying and less densely built-up sections, rails would be laid on the ground where possible and on graceful elevated structures where necessary to take advantage of existing ground-level rights-of-way.

The system would provide a main, trunk-line service by tapping the centers of population and employment concentrations. Stations would be spaced at an average of about every two miles at places determined to be the most convenient to the most number of users. Suburban stations would have parking lots with capacities up to 1,000 automobiles, and there would be convenient transfer facilities at all stations for feeder bus lines which would radiate into the surrounding areas to provide local service.

By providing transportation that would be faster, more economical and more comfortable than driving, the proposed RAPID TRANSIT system would make it possible—even in a Bay Area with a population double what it is today—for people to live where they want and to work where they want without limiting choice of either residence or job.

The experts who studied the problem for more than two years and recommended RAPID TRANSIT as the Bay Area's only solution to congestion did not mince words. They declared:

“Without rapid transit, the Bay Area will ultimately pay many times its cost in additional hours of travel time, in the additional cost of trucking goods over highways congested by automobiles, in diminished revenues from property depreciated by congestion or swallowed by automobile facilities, and in the premium costs of urban freeways and parking garages.

“We do not doubt that the Bay Area citizens can afford rapid transit; we question seriously whether they can afford *not* to have it.”



SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

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Telephone: YUkon 2-9838

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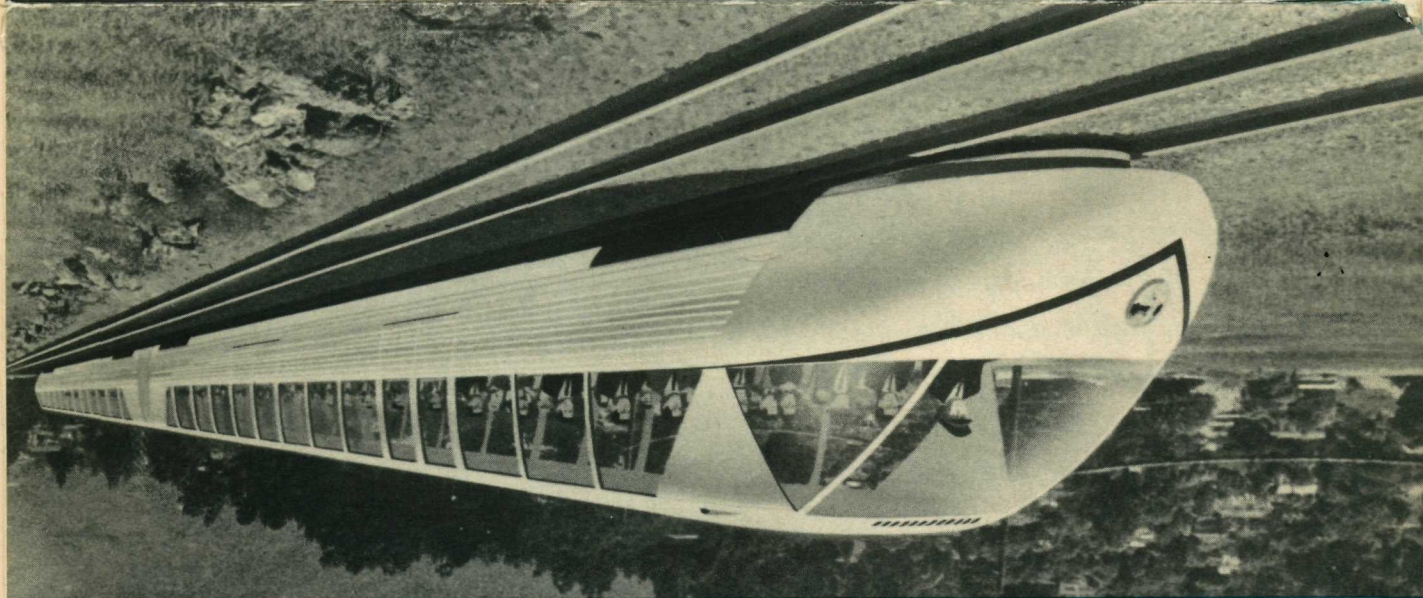
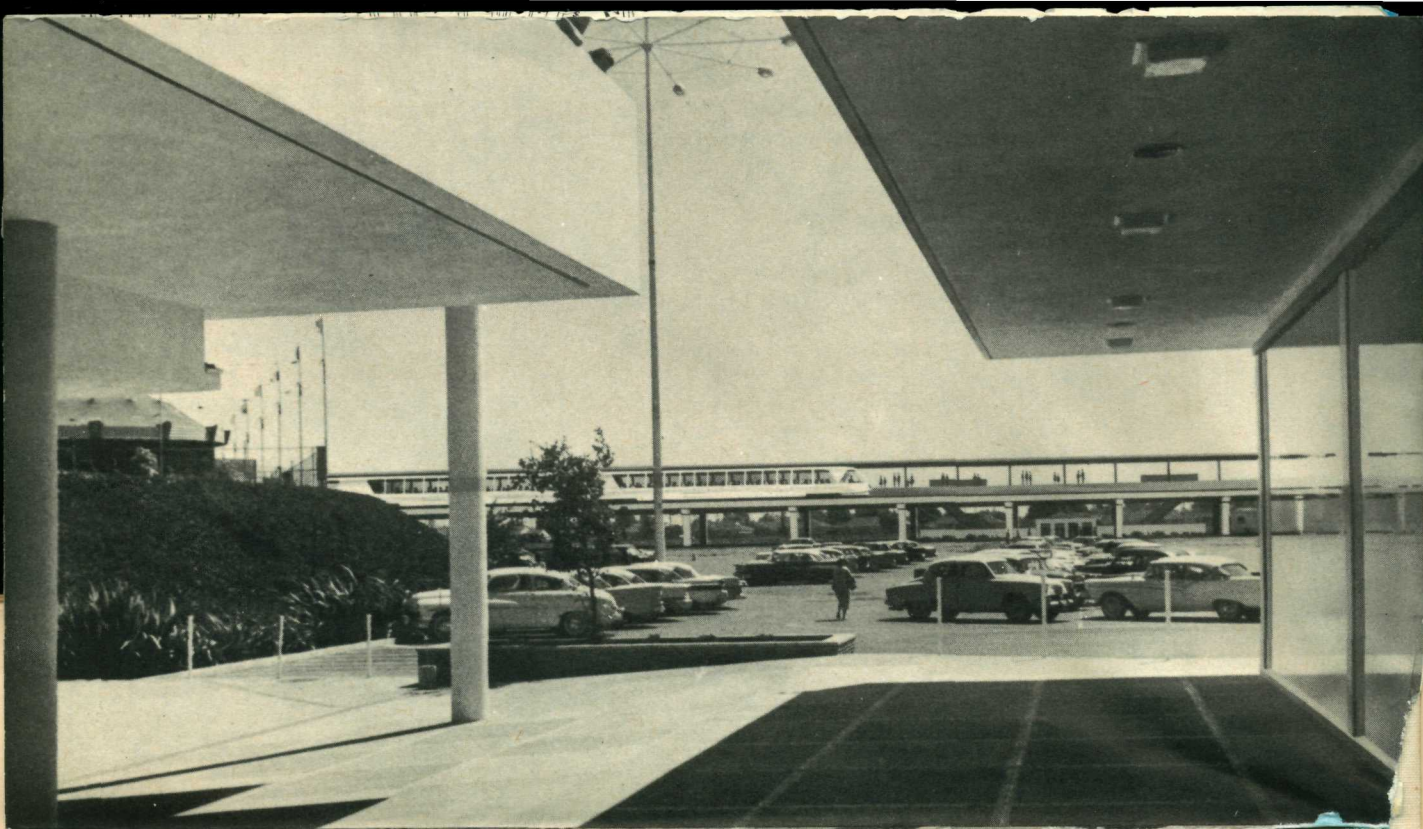
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RAPID TRANSIT MOVES AHEAD...

Let's see how the Bay Area Rapid Transit System is making a difference in the lives of the people who live here.

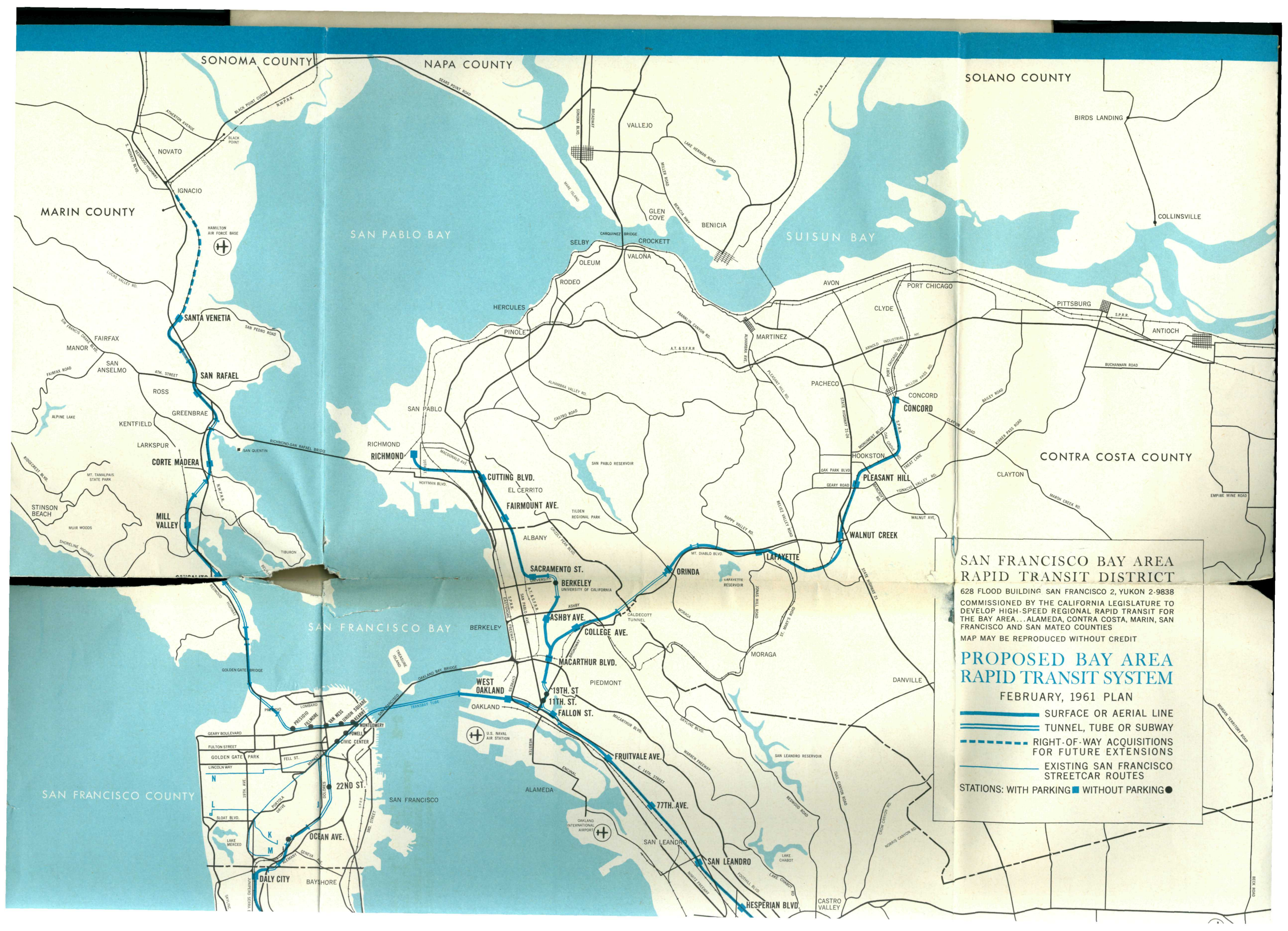
San Francisco Bay Area Rapid Transit System

June 26, 1961



...TO A BETTER BAY AREA

and, eventually, create such a strong
rapid transit, more and more motorists
congestion during the 30 hour commu-
to work many of those commuters are
congestion, all involve an increase in
rapid transit, operating free
beneficiaries will be members of the
to the entire Bay Area. But I am sure
it is my firm conviction that
congestion
could be left at home.
causing the congestion which produces
good, rapid transit, a superhighway
such measures perhaps could be
will affect the backbones of the
that sooner or later rapid transit will
because of the stop-and-go and slow
business in congested areas where such
sources in the production of air pol-
available evidence that the private
tioned, and that concerns about the
there is one other aspect of



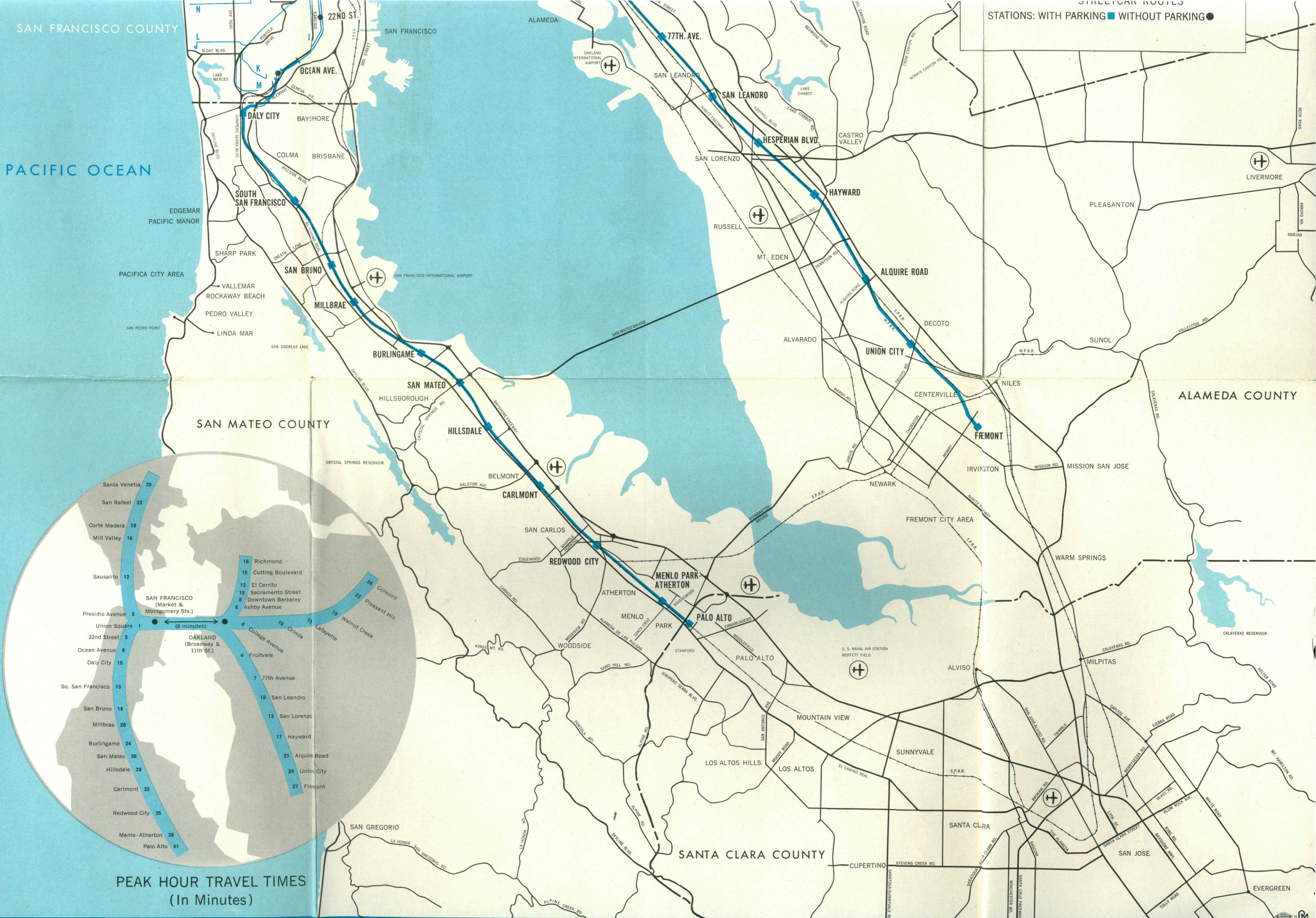
SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

628 FLOOD BUILDING SAN FRANCISCO 2, YUKON 2-9838
COMMISSIONED BY THE CALIFORNIA LEGISLATURE TO
DEVELOP HIGH-SPEED REGIONAL RAPID TRANSIT FOR
THE BAY AREA...ALAMEDA, CONTRA COSTA, MARIN, SAN
FRANCISCO AND SAN MATEO COUNTIES
MAP MAY BE REPRODUCED WITHOUT CREDIT

PROPOSED BAY AREA RAPID TRANSIT SYSTEM

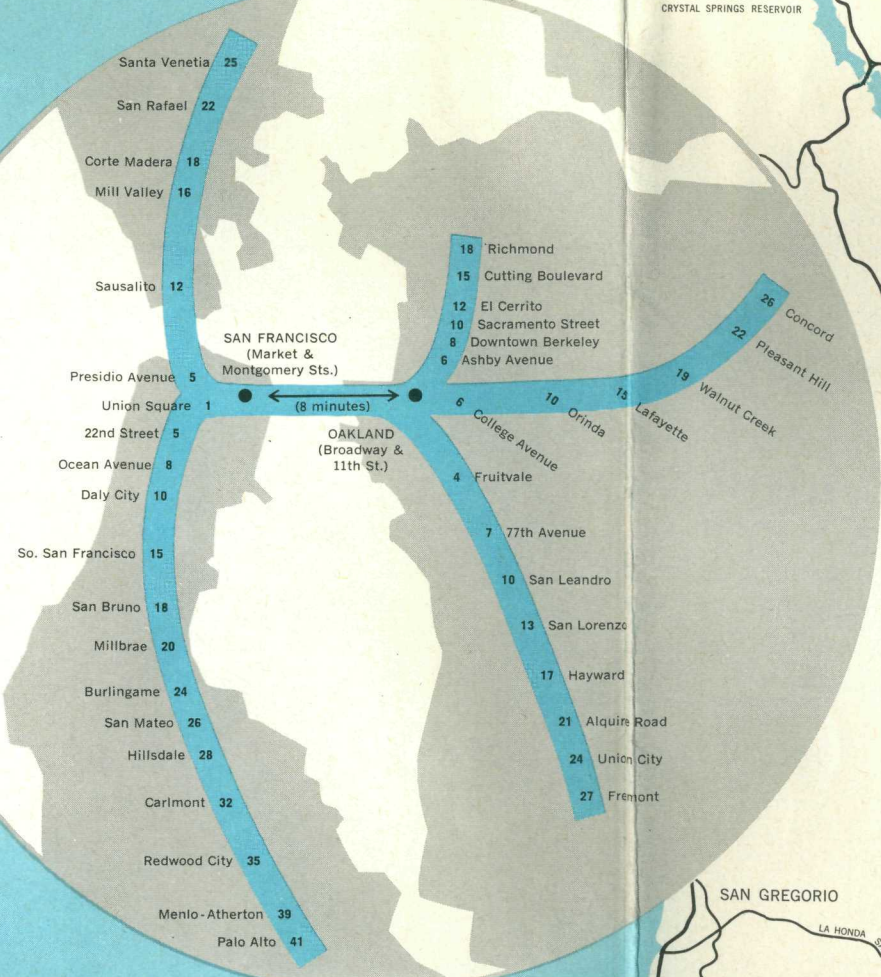
FEBRUARY, 1961 PLAN

- SURFACE OR AERIAL LINE
- TUNNEL, TUBE OR SUBWAY
- RIGHT-OF-WAY ACQUISITIONS
FOR FUTURE EXTENSIONS
- EXISTING SAN FRANCISCO
STREETCAR ROUTES
- STATIONS: WITH PARKING WITHOUT PARKING



STATIONS: WITH PARKING ■ WITHOUT PARKING ●

PEAK HOUR TRAVEL TIMES
(In Minutes)



You—and the other residents of the Bay Area—will go to the polls in the not-too-distant future to make one of the most important civic decisions you probably ever will make: whether to construct the world's most modern *regional* rapid transit system in the counties of Alameda, Contra Costa, Marin, San Francisco and San Mateo.

That is the bare issue. But implicit in it are effects that will determine whether congestion is to become a permanent evil . . . a determination that will bear directly on the pocketbook, tax bill, way of life and standard of living of the Bay Area citizen of today, 1980, 2000 and beyond.

With rapid transit, the Bay Area will have an attractive supplement to the private automobile which will provide a truly *balanced* transportation system. Transportation experts agree that such a system offers the *only* hope of ending congestion problems.

With rapid transit, those who now drive only because they have no other choice will be able to travel via rapid transit—swiftly, comfortably and safely. Those who *must* drive will be able to do so on congestion-free freeways, highways and streets.

With rapid transit helping to move *people*, the constant pressure for more and more freeways, highways and parking facilities to accommodate *machines* will be lessened materially. And this will mean less ultimate cost to taxpayers, more land retained for homes and businesses and industries, and less land removed from productive use and the tax base.

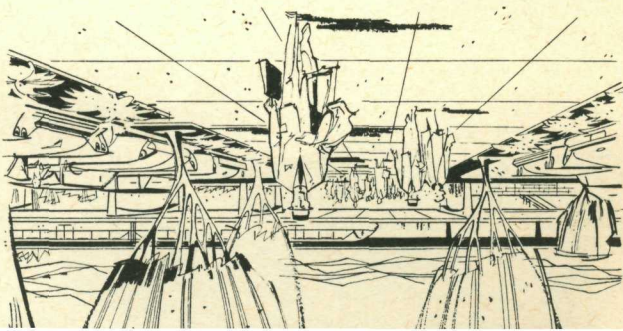
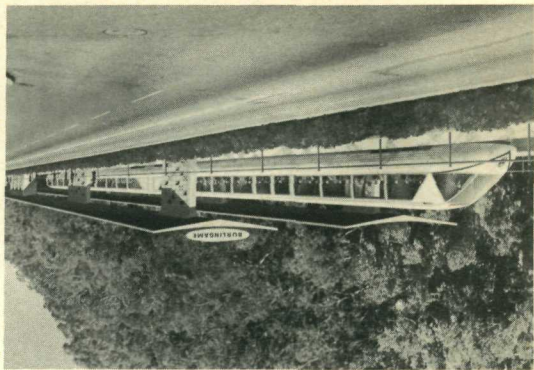
Without rapid transit, the Bay Area by default will have chosen an *unbalanced* transportation system which provides no real choice but the private automobile. Such a course must, inevitably and inescapably, lead to ever greater congestion, continued removal of scarce land for vast highways and parking projects—and, consequently, a steadily shrinking tax base—reduced job opportunities, ever-widening urban “scat-teration” and a host of other costly consequences which would make the Bay Area a much less attractive place in which to live and work and raise a family.

Your decision on this question of rapid transit, then, must be a thoughtful one.

Over this extensive system of private rights-of-way, electrically-powered trains would operate entirely free of congestion at all times to provide *guaranteed* travel times. These trains would be:

- Constructed of aluminum or lightweight stainless steel
- Designed to appeal to the eye, provide maximum comfort and be virtually noiseless in operation.
- Capable of top speeds of 80 miles an hour and of scheduled average speeds, including station stops, of 50 miles an hour—twice as fast as any existing transit system.
- Designed to operate as frequently as every 90 seconds during peak hours and carry 30,000 seated passengers per hour in each direction. The two-way capacity of the system will be equivalent to 30 to 40 lanes of freeways for people traveling in automobiles at the current occupancy average of 1.5 persons per car.
- Designed to operate under automatic control from a central “electronic brain” which will insure the highest standard of service and safety for patrons. This “electronic brain” also will make possible the incorporation of a “ride now—pay later” plan under which regular commuters will be billed monthly.

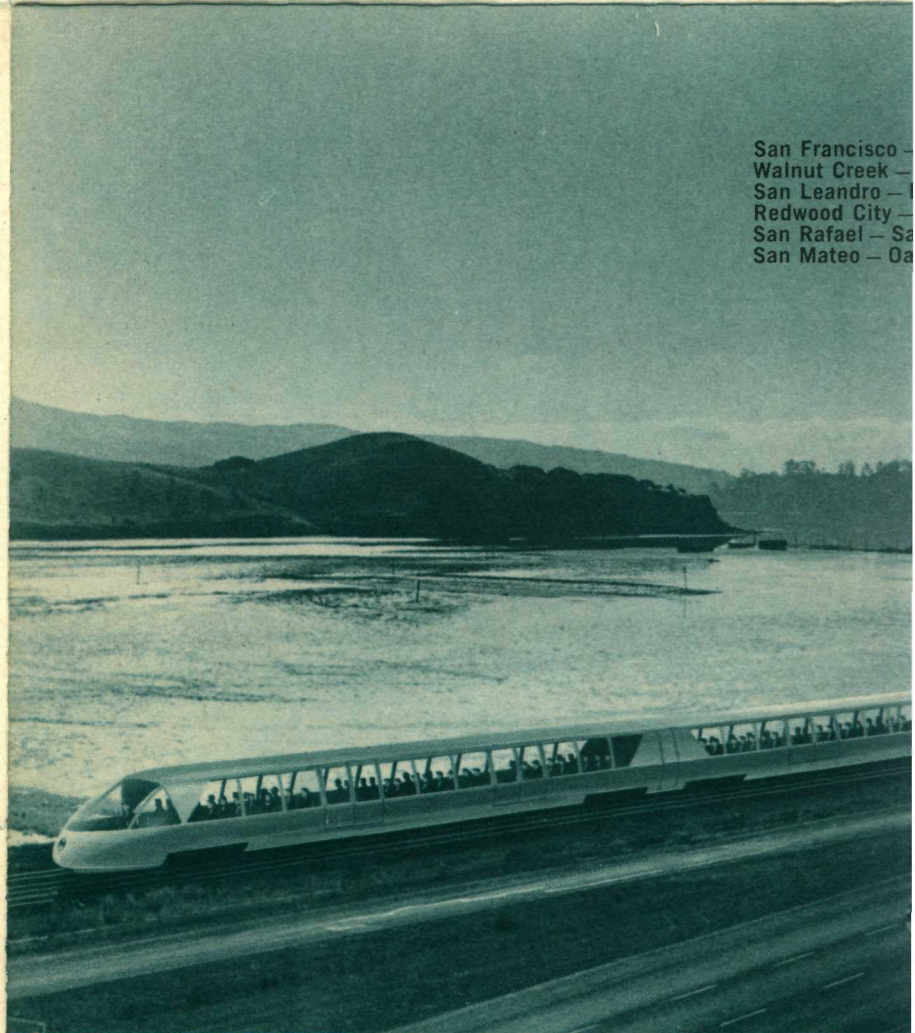
These are, you will agree, high operating standards. They are designed to accomplish *one* objective—to provide transportation *superior* to the private automobile in terms of speed, convenience, comfort, economy and safety.



decline. At least 60 per cent of all jobs in the Bay Area are in these three central cities. Most of the population growth will be absorbed in the outlying suburban areas, and single-family homes will stretch out farther and farther from the central “core.” At the same time, certain suburban areas will continue to attract an increasing number of manufacturing plants which require large amounts of land. Today’s critical peak-hour congestion will become increasingly worse as more and more suburban residents travel greater and greater distances to jobs in the central “core,” mingling with the increasing reverse flow of central city commuters to jobs in outlying manufacturing plants and with the growing flow of commuters from one suburban point to another suburban point within the Bay Area.

The present Rapid Transit District was created as a five-county regional public agency by the State Legislature as a result of the studies by the Commission.

your decision, intensive study, gestion prob- y Area Rapid San Fran- the San Fran- area transpor- ning, etc. — the Bay Area — to a total next 20 to 25 s in prospect. — San Fran- the resident or even tatic, or even



BAY AREA RAPID TRANSIT DISTRICT
628 FLOOD BUILDING • 870 MARKET ST. • SAN FRANCISCO 2

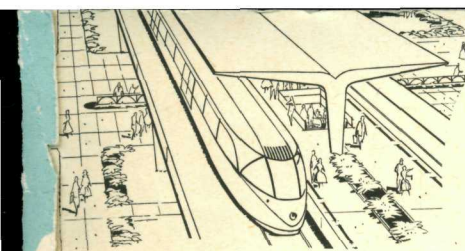
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As you will note, routes fan out to commuter hours on workdays. All parts of the five counties from the key link in the system—the four-mile underwater trans-Bay transit tube which connects the subway complexes of downtown San Francisco and Oakland and ties together the entire system. Under legislation already passed by the State Legislature, and approved by Congress, construction of the tube portion of the project will be financed by a portion of the surplus automobile tolls collected on the San Francisco-Oakland Bay Bridge.

There are 51 stations on the first-stage system. All outlying stations have spacious parking areas and convenient transfer facilities for feeder buses which will operate throughout the or public transit during peak

Accompanying the map is a diagram which shows how rapid transit, operating entirely free of congestion, would slash travel times between Bay Area points. For a dramatic illustration of how rapid transit literally would *shrink* the Bay Area, compare the *guaranteed* times in the chart with the time it now takes you to make trips by automobile or public transit during peak

San Francisco —
Walnut Creek —
San Leandro —
Redwood City —
San Rafael —
San Mateo —



The District has retained three internationally-recognized engineering firms — Parsons, Brinckerhoff, and Douglas, of New York, and the Bechtel Corporation and Tudor Engineering Company, of San Francisco — to plan the best possible transportation system to meet the Bay Area travel needs of both today and tomorrow.

The map on the inside fold traces the routes and the locations of stations as now proposed. The routes are underground in subway to provide direct delivery to the hearts of the built-up downtown sections,

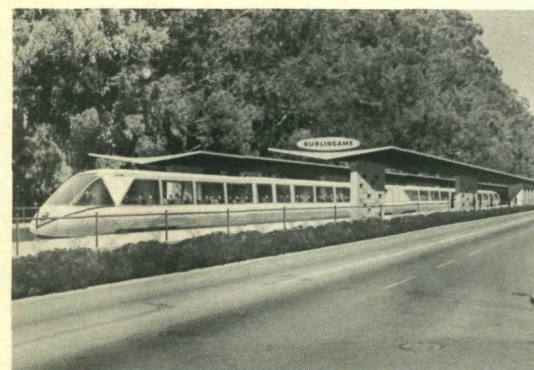
in tunnel through difficult terrain, on graceful aerial structures where no other solution is feasible and grade-separated at ground level. The solid lines trace the 120 miles of routes scheduled for first-stage construction, and the dashed lines indicate an additional four miles of rights-of-way which will be acquired to permit the earliest possible extension of the Marin Line.

Accompanying the map is a diagram which shows how rapid transit, operating entirely free of congestion, would slash travel times between Bay Area points. For a dramatic illustration of how rapid transit literally would *shrink* the Bay Area, compare the *guaranteed* times on the chart with the time it now takes you to make trips by automobile or public transit during peak

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Over this extensively-powered gestation at all times. These trains will be:

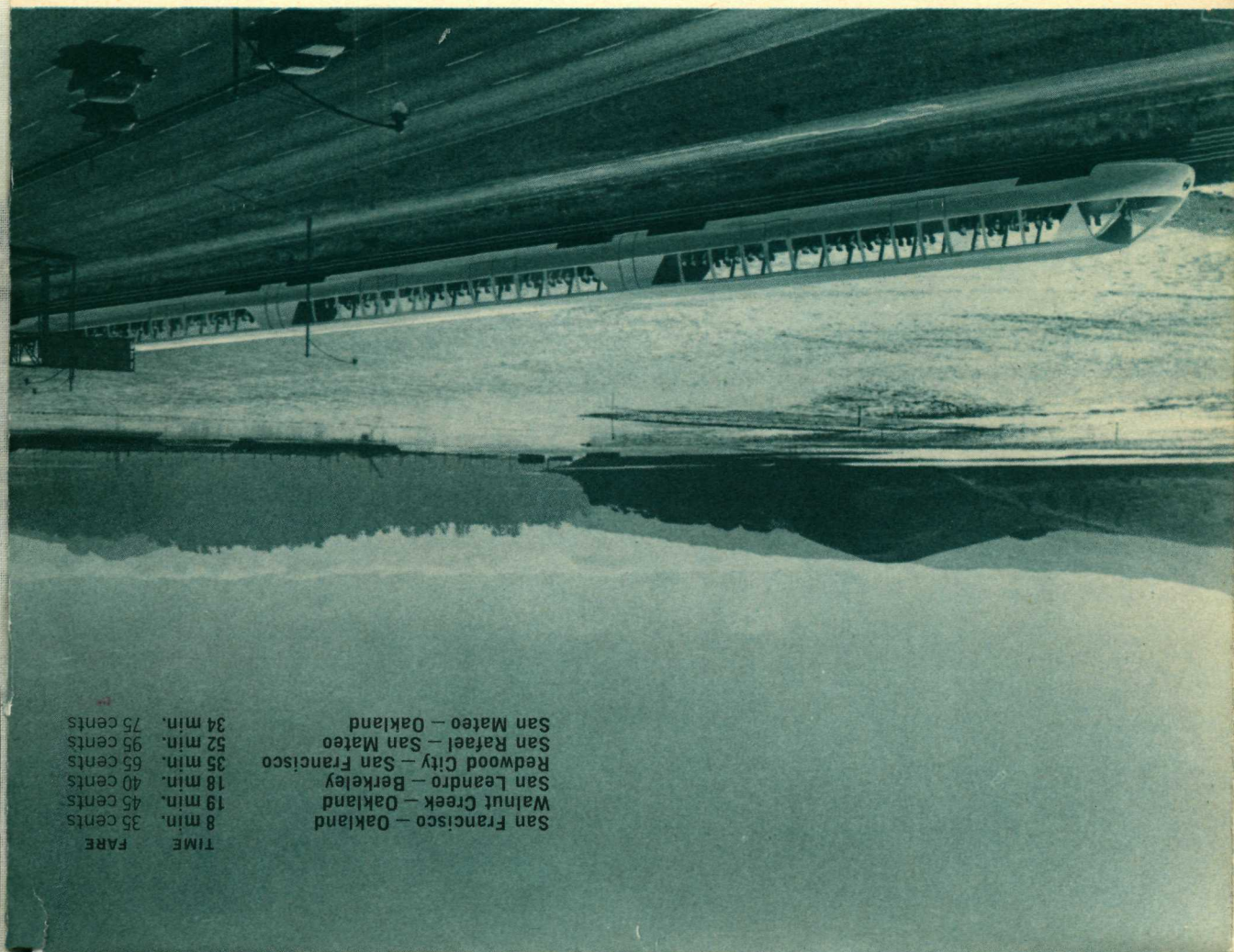
- Constructed of steel — designed for comfort and safety.
- Capable of 100 miles an hour — scheduled average 50 miles an hour.
- Designed to operate during peak hours — 100 per hour in each direction.
- The system will be designed for people's convenience — no transfers, no waiting.
- Designed to be "electronic" — no tickets, no fare boxes, no change.
- "Electronic" — no tickets, no fare boxes, no change.
- Regular commuter trains — no transfers, no waiting.

These are, you will find, are designed to transportation system of speed, convenience.

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BAY AREA RAPID TRANSIT DISTRICT

628 FLOOD BUILDING • 870 MARKET ST. • SAN FRANCISCO 2



TIME	FARE
8 min.	35 cents
19 min.	45 cents
18 min.	40 cents
35 min.	65 cents
52 min.	95 cents
34 min.	75 cents

San Francisco — Oakland
Walnut Creek — Oakland
San Leandro — Berkeley
Redwood City — San Francisco
San Rafael — San Mateo
San Mateo — Oakland

By the time you are asked to make your decision, a decade will have been devoted to intensive studies of all aspects of Bay Area congestion problems — first by the San Francisco Bay Area Rapid Transit Commission and now by the San Francisco Bay Area Rapid Transit District.

The Commission retained outstanding experts to conduct the most thorough studies ever made of the many complex factors — population growth, land use, employment projections, travel data, economic indices, master planning, etc. — which contribute to metropolitan area transportation patterns.

The studies determined that the Bay Area is expected to *double* in population — to a total of more than 7,000,000 — in the next 20 to 25 years and that chaotic congestion is in prospect. Here's why:

The Bay Area's central "core" — San Francisco, Oakland and Berkeley — will continue to add jobs at a very fast rate, but the resident population will remain relatively static, or even

decline. At least 60 per cent of *all* jobs in the Bay Area are in these three central cities.

Most of the population growth will be absorbed in the outlying suburban areas, and single-family homes will stretch out farther and farther from the central "core." At the same time, certain suburban areas will continue to attract an increasing number of manufacturing plants which require large amounts of land.

Today's critical peak-hour congestion will become increasingly worse as more and more suburban residents travel greater and greater distances to jobs in the central "core," mingling with the increasing reverse flow of central city commuters to jobs in outlying manufacturing plants and with the growing flow of commuters from one suburban point to another suburban point within the Bay Area.

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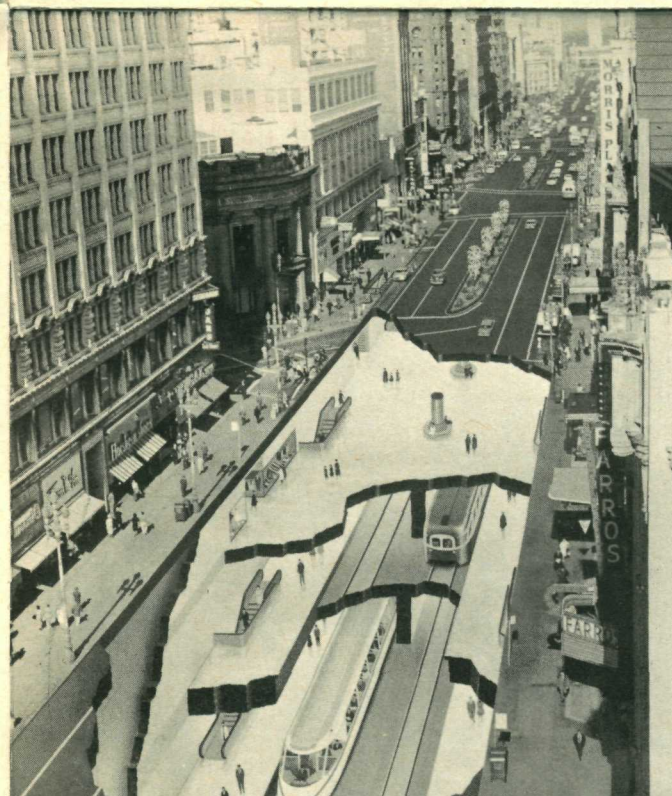
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Capital cost of the 1,000, including funding of-way and ample patented inflation in the While this cost note that approxi- be spent next year streets in California It also is impos- transit will be co- from a standpoint with surplus rever- Two outstanding- Barney and Com- Youngberg, of San financing the cons- jective is to spread fare box and other most equitable pos- Details of the p- of the final plan ac- tors. This plan will visors of the five- boards may take s- study the plan be- when the boards h- be submitted to th- for this election o- will come in June,